

REMARKS

The Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-27 are pending. Claims 10-18 are withdrawn. Claims 1, 2 and 10-18 are amended. Claim 1 is independent. The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment was not presented at an earlier date in view of the fact that the Examiner has cited new grounds for rejection and the rejection in this Office Action was a final rejection.

Rejection Under 35 U.S.C. §103(a)

Claims 1-9 and 19-27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over either Nagahama et al. (U.S. 6,172,382) or Kiyoku et al. (U.S. 6,153,010). These rejections are respectfully traversed.

While not conceding the appropriateness of the Examiner's rejections, but merely to advance prosecution of the instant application, independent claim 1 is amended to recite a

combination of elements directed to a buffer in which each of the second layers has a thickness substantially equal to four times a thickness of each of the first layers.

In addition, dependent claim 2 is amended herein to recite a buffer as claimed in claim 1 wherein the thickness of each of the first layers is substantially equal to 20 nm, and the thickness of each of the second layers is substantially equal to 80 nm.

Full support for the limitations set forth in claims 1 and 2 as amended herein can be found in the specification, for example, on page 12, lines 1-16, which discloses first layers 16a with thicknesses of 20 nm, and second layers 16b with thicknesses of 80 nm. See also FIG. 3, which clearly shows second layers 16b having a greater thicknesses than first layers 16a.

Applicants respectfully submit that the combinations of elements set forth in independent claim 1 and dependent claim 2 are not disclosed or made obvious by the prior art of record, including Nagahama et al. and Kiyoku et al.

None of the embodiments or examples in Nagahama et al. or Kiyoku et al. teaches or suggests a buffer in which each of the second layers has a thickness substantially equal to four times a thickness of each of the first layers, or a buffer wherein the thickness of each of the first layers is substantially equal to 20 nm, and the thickness of each of the second layers is substantially equal to 80 nm.

In particular, the Nagahama et al. document and merely discloses first and second layers with thicknesses of not more than 100 angstroms each (column 2, lines 47-53), and merely discloses cladding layer 19 including first and second layers with thicknesses of 20 angstroms each (column 22, line 65 to column 23, line 2). In addition, the Kiyoku et al. document fails to

disclose or suggest relative thicknesses of first and second layers of a superlattice structure (column 20, lines 10-33).

Note also that claim 1 as amended herein also includes first layers made of a nitride semiconductor containing an impurity at a concentration of 10^{18} cm^{-3} or more. In the original filing of this application, this limitation was set forth in dependent claim 2.

In view of the amendment and arguments above, Applicants respectfully submit that the combination of elements as set forth in independent claim 1 as well as the dependent claims is not disclosed or made obvious by the prior art of record, including Nagahama et al. and Kiyoku et al., for the reasons explained above. Independent claim 1 and the claims depending directly or indirectly therefrom are now in condition for allowance. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject claims, but merely to show the state of the art, no comment need be made with respect thereto.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

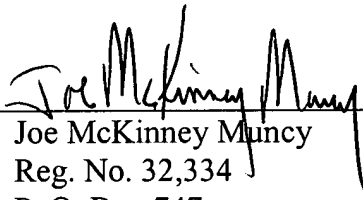
If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone the undersigned at (703) 205-8000.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants respectfully petition for a two (2) month extension of time for filing a response in connection with the present application and the required fee of \$420.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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